AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claims 1-41 (Cancelled)

42. (new) A method of operating a variable power output solid oxide fuel cell stack comprising at least one solid oxide fuel cell having a mixed ionic/electronic conducting electrolyte, the method comprising the steps of:

(a) determining a current and a required power output of said solid oxide fuel cell stack;

(b) comparing said determined current and required power outputs of said solid oxide fuel cell stack to determine a required change in the power output of said solid oxide fuel cell stack; and

(c) controlling at least one operating condition of said solid oxide fuel cell stack to effect said required change in power output, a required increase in power output including at least one of:

(i) an increase in the temperature of said at least one solid oxide fuel cell; and

(ii) an increase in the concentration of fuel delivered to said solid oxide fuel cell,

and a required decrease in power output including at least one of:

(i) a decrease in the temperature of said solid oxide fuel cell; and

(ii) a decrease in the concentration of fuel delivered to said solid oxide fuel cell.

43. (new) A method according to claim 42, wherein the temperature of the solid oxide fuel cell is maintained at 650°C or below.

44. (new) A method according to claim 43, wherein the temperature of the solid oxide fuel cell is maintained at 600°C or below.

45. (new) A method according to claim 42, wherein fuel delivered to the solid oxide fuel cell is diluted with a predetermined amount of steam, carbon dioxide, nitrogen or a mixture including steam, carbon dioxide and/or nitrogen.

46. (new) A method according to claim 43, wherein fuel delivered to the solid oxide fuel cell is diluted with a predetermined amount of steam, carbon dioxide, nitrogen or a mixture including steam, carbon dioxide and/or nitrogen.

47. (new) A method according to claim 44, wherein fuel delivered to the solid oxide fuel cell is diluted with a predetermined amount of steam, carbon dioxide, nitrogen or a mixture including steam, carbon dioxide and/or nitrogen.

48. (new) A method according to claim 42, wherein fuel delivered to the solid oxide fuel cell is diluted with a variable proportion of recycled exhaust gas from an anode side of the at least one fuel cell.

49. (new) A method according to claim 43, wherein fuel delivered to the solid oxide fuel cell is diluted with a variable proportion of recycled exhaust gas from an anode side of the at least one fuel cell.

50. (new) A method according to claim 44, wherein fuel delivered to the solid oxide fuel cell is diluted with a variable proportion of recycled exhaust gas from an anode side of the at least one fuel cell.

51. (new) A method according to claim 42, said at least one solid oxide fuel cell electrolyte including gadolinium-doped cerium oxide.

52. (new) A control system for a variable power output solid oxide fuel cell stack comprising at least one solid oxide fuel cell having a mixed ionic/electronic conducting electrolyte, the control system comprising:

(a) means for determining a current and a required power output of said solid oxide fuel cell stack;

(b) comparison means for comparing a determined current and required power outputs of said solid oxide fuel cell stack to determine a required change in the power output of said solid oxide fuel cell stack; and

(c) a controller for controlling at least one operating condition of said solid oxide fuel cell stack to effect said required change in power output, said controller being arranged to effect a required increase in power output by controlling at least one of:

(i) an increase in the temperature of said at least one solid oxide fuel cell; and

(ii) an increase in the concentration of fuel delivered to said solid oxide fuel cell,

and to effect a required decrease in power output by controlling at least one of:

(i) a decrease in the temperature of said solid oxide fuel cell; and

(ii) a decrease in the concentration of fuel delivered to said solid oxide fuel cell.

53. (new) A control system according to claim 52, wherein the controller maintains the temperature of the stack at 650°C or below.

54. (new) A control system according to claim 53, wherein the controller maintains the temperature of the stack at 600°C or below.

55. (new) A control system according to claim 52, wherein the controller arranges the fuel delivered to the fuel cell stack to be diluted with a predetermined amount of steam, carbon dioxide, nitrogen or a mixture including steam, carbon dioxide and/or nitrogen.

56. (new) A control system according to claim 53, wherein the controller arranges the fuel delivered to the fuel cell stack to be diluted with a predetermined amount of steam, carbon dioxide, nitrogen or a mixture including steam, carbon dioxide and/or nitrogen.

57. (new) A control system according to claim 54, wherein the controller arranges the fuel delivered to the fuel cell stack to be diluted with a predetermined amount of steam, carbon dioxide, nitrogen or a mixture including steam, carbon dioxide and/or nitrogen.

58. (new) A control system according to claim 52, wherein the controller arranges the fuel delivered to the fuel cell stack to be diluted with a variable proportion of recycled exhaust gas from anode sides of the fuel cell stack.

59. (new) A control system according to claim 53, wherein the controller arranges the fuel delivered to the fuel cell stack to be diluted with a variable proportion of recycled exhaust gas from anode sides of the fuel cell stack.

60. (new) A control system according to claim 54, wherein the controller arranges the fuel delivered to the fuel cell stack to be diluted with a variable proportion of recycled exhaust gas from anode sides of the fuel cell stack.

61. (new) A control system according to claim 55, wherein the controller arranges the fuel delivered to the fuel cell stack to be diluted with a variable proportion of recycled exhaust gas from anode sides of the fuel cell stack.

62. (new) A fuel cell stack with mixed ionic/electronic conducting electrolytes including a control system according to claim 52.

63. (new) A fuel cell stack with mixed ionic/electronic conducting electrolytes including a control system according to claim 53.

64. (new) A fuel cell stack with mixed ionic/electronic conducting electrolytes including a control system according to claim 54.

65. (new) A fuel cell stack with mixed ionic/electronic conducting electrolytes including a control system according to claim 55.

66. (new) A fuel cell stack with mixed ionic/electronic conducting electrolytes including a control system according to claim 58.